Development of Treatment Adherence Measures for Multi-Family Psychoeducational Psychotherapy (MF-PEP) for Children with Autism Spectrum Disorders

An Honors Research Thesis

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By

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Abstract

Significant efforts have been made in recent years to bridge the gap between research and practice. As empirically-supported treatments (using evidence to inform practice) become the preferred choice of treatment in clinical settings, additional research is necessary to refine aspects of the development, implementation and interpretation of such interventions. Monitoring treatment fidelity, specifically, adherence to the treatment protocol, within these interventions will provide researchers with additional information about the treatment's utility and effectiveness. The present study describes the development and psychometric properties of the Therapist Adherence Checklist, a measure used to assess treatment adherence in Multi-Family Psychoeducational Psychotherapy (MF-PEP) for Autism Spectrum Disorders (ASD), an intervention designed for children aged 8-12 with an ASD and their families. Two groups of MF-PEP each consisting of nine weekly sessions, were evaluated. Adherence measures specific to each session's topics and goals were developed. Three trained research assistants observed each session and completed the described measure. Tests of reliability were run to examine internal consistency as well as inter-rater reliability. Analyses of reliability demonstrated questionable-acceptable (α= .48-.78) internal consistency and a wide range of very low to moderate intraclass correlation coefficients (3, 1) =.22-.79 for inter-rater reliability. These results demonstrated that raters varied in agreement throughout sessions of MF-PEP, implying the measures may be unclear or raters may need additional training to increase reliability. Varied levels of internal consistency also indicated that revisions may be needed in order to ensure that the measures are consistently measuring therapist adherence. Measures with inconsistent reliability need additional revisions and research in order to be used to monitor treatment fidelity. This will enable comprehensive evaluations of empirically supported treatments, contributing to their effective and efficient use in clinical settings in order to create better client outcomes.

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Introduction

Autism Spectrum Disorders: Diagnoses, Symptoms and Treatments

Autism-Spectrum Disorders, or ASDs, are a group of developmental disorders characterized by three categories of impairment: social impairment, communication impairment, and restrictive, repetitive behaviors and interests. Researchers view them as a spectrum because many symptoms present differently and with varying levels of severity in different children. The spectrum currently includes Autistic disorder, Asperger's Disorder, and Pervasive Developmental Disorder Not Otherwise Specified (PDD NOS). ASDs affect about 1 in 88 children, a number that has increased greatly over time ("Prevalence of Autism," 2012). Researchers are unsure as to whether this increase is due to an actual increase in number of cases or an increase in the ability to diagnose the disorder. This rising number may also be attributed to the range of diagnoses included in an Autism-Spectrum Disorder diagnosis. Because ASD is an umbrella category, diagnosing a child with a specific disorder can be difficult. While an individual with "classic Autism" usually displays significant deficits in all three categories, individuals with Asperger's Disorder syndrome or PDD NOS may not display obvious impairment in all three of these categories ("Prevalence of Autism," 2012). These impairments cause many unique challenges for children and their families with an ASD. They can range from cognitive difficulties, trouble making and keeping friends, or emotional dysregulation at school and at home.

Just as the type and severity of impairments faced by children with ASD varies, the treatments for children with an ASD also vary depending on the severity and type of diagnosis.

Behavioral therapy has received the most evaluation; typically, treatment goals are to increase productive behaviors and decrease unwanted ones. In addition, speech-language therapy, occupational therapy and physical therapy have been used in treatment. An additional treatment option is medication. While there are no medications that cure an ASD, there are options that can help families manage some of the symptoms associated with ASD. Finally, education-based treatment is an option that works to integrate the role of the child's school into their treatment as well as provide resources for the family. It is recommended that treatments begin when a child is diagnosed, most commonly around age 3 (National Institute of Mental Health, 2011).

While there are multiple options for treatment, many of which are supported by evidence, there is much room for improvement. There are many misconceptions about the origins and treatment options for children with an Autism Spectrum Disorder. Popular media coverage has falsely implicated vaccines as playing a role in causing Autism. These assertions alarmed parents, leading some to choose not to have their children vaccinated. Multiple studies have demonstrated that there is no link between vaccines and Autism (Immunization Safety Review Committee, 2004; Interagency Autism Coordinating Committee, 2010). Additionally, many treatments involving changes to diets and unsupported therapeutic techniques are being used by parents of children with an ASD. A recently popular option for treating children with an ASD is a gluten-free, casein-free diet. While some studies have shown improvement in certain symptoms of ASD after following such a diet, this option has not been empirically supported and is not reliable for every child (Patel & Curtis, n.d.). Another controversial treatment method is a form of therapy known as sensory-integration therapy, a type of occupational therapy (OT) that involves challenging all of the senses. A literature review (Vargas & Camilli, 1994) demonstrated that the treatment was not effective overall. While this method has also not been backed by

research, many people still view it as a valid form of treatment. These misconceptions about the validity and effectiveness of treatment options only provide further support for the importance of empirically supported treatments (Vargas & Camilli 1994). Research has demonstrated that there is a need for additional evidence-based psychosocial interventions designed to help children and their parents with the symptoms and challenges of ASD, especially for children older than six (Warren, Z., Veenstra-VanderWeele, J., & Stone W. et al., 2011).

Evidence-Based Practice

Significant efforts have been made in recent years to bridge the gap between research and practice. The clinical use and successful replication of evidence-based practices, such as those being used to help children and their parents with the challenges of ASD is an effective way of beginning this process. This will not only serve the larger goal of merging research and practice but also improve daily functioning for children with an ASD diagnosis. Using evidence to inform practice (empirically-supported treatments) has become the preferred choice of treatment adapted for clinical use. This movement towards empirically-supported treatments originates from various sources, including the lack of funding for clinical services as well as the ease of implementing treatment and tracking effectiveness (Long, 2008).

The American Psychological Association defines Evidence Based Practice for Psychology as the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences (American Psychological Association, 2002). This typically includes the integration of three principles. First, decisions regarding interventions are backed by empirical, research-based support. Second, critical assessments are necessary to determine how well the EBP's are suited to the intended practice. Third, regular monitoring and revisions are performed based on the outcome evaluation (Proctor & Rosen,

2004). Researchers continue to develop new interventions for various mental health issues, including treatment for alcohol addiction, adolescent depression, or development of school interventions and treatment for children with autism.

The Importance of Evaluating Treatment Fidelity

When using new psychosocial interventions, it is essential to monitor the in use treatments to insure successful development and implementation. While it is necessary to monitor multiple aspects of psychosocial interventions, one of the most commonly assessed aspects is treatment fidelity. Treatment fidelity encompasses adherence, differentiation, and competence. Adherence refers to evaluating whether the treatment was implemented as it was intended. Differentiation evaluates the degree to which one treatment can be distinguished from another while competence is the quality or skill with which interventions are delivered (Perepletchikova, 2005). The importance of fidelity in the evaluation of evidence-based practices is to guide the implementation process and assure the successful replication of the core principles and procedures in hopes that replication will achieve similar outcomes as the original research (Bond, Becker, & Drake, 2011). While all three aspects of fidelity are important, the current study examined only one aspect, treatment adherence.

In addition to ensuring that research is being carried out as intended, fidelity measurements are vital to several other aspects of evidence-based practices. If any aspect of treatment fidelity is not assessed correctly, or not assessed at all, it will be more difficult to interpret the results of the study. A positive outcome or significant results may not be reliable because it will be impossible to determine whether they are a result of the intended treatment or an outside variable. Similarly, a failure to support the hypothesis may be due to improper

implementation or external factors (Dumas, Lynch, Laughlin, Smith, & Prinz, 2001; Schoenwald et al., 2010; Moncher & Prinz, 1991).

Treatment fidelity must be assessed in these studies to maintain both internal (the degree to which observed effects can be attributed to the experimental treatment or condition), and external validity (the degree to which the findings can be generalized or applied to the real world). Maintaining external validity is necessary in order to perform treatment replication and apply treatments to a clinical setting. This brings the importance of treatment fidelity back to its larger purpose of assisting to merge research with applied setting practice.

The current literature on treatment fidelity shows that it is largely neglected among research studies although the situation is improving slowly over time. From 1980-1994, one study reported that only 24% of 162 studies which evaluated effectiveness of prevention programs assessed fidelity (Dane & Schneider, 1998). The data on treatment program fidelity are only slightly higher. From 1968 to 1980, data collected on 539 studies in behavioral analysis demonstrated that only 20% contained any aspects of treatment fidelity (Peterson et al., 1982).

One of the most comprehensive studies on the topic of treatment fidelity was completed by Moncher and Prinz (1991), who examined 359 treatment outcome studies for the existence and aspects of fidelity. They reviewed how fidelity was assessed and used in the interpretation of results as well as specific procedures used to promote fidelity. The study demonstrated that while the majority of research studies did not use any form of treatment fidelity (55%), treatment fidelity increased over the decade for studies using a manual, treatment supervision, and adherence checks (Moncher & Prinz, 1991). Minimal research in recent years has examined fidelity implementation. While many researchers report that they took certain precautions to promote fidelity, there is no record of the methods used to develop and assess treatment fidelity

(Dusenbury et al., 2003). The degree to which fidelity has been neglected in the past is discouraging due to its importance in the success of evidence-based practice, but the increase over the last decade demonstrates that researchers are becoming more aware of its significance. In addition to the absence of treatment fidelity, even when studies do have some form for treatment fidelity, they rarely evaluate the reliability or validity of the measures used to assess fidelity. Scheirer and Rezmovic (1983) demonstrated an example of this when they reviewed 74 studies that attempted to monitor fidelity and found that 65% of the studies didn't discuss psychometric properties of the treatment fidelity instruments. Psychometric evaluation of fidelity measures is important to the effective implementation of treatment fidelity and will be further discussed in the next section.

Assessing Treatment Fidelity

To be effective, a fidelity measure should maintain certain psychometric properties. The science of psychometrics is usually focused on the type, reliability, and validity of the data. If a measure or test is psychometrically sound it will be reliable and useful in future research (Furr & Bacharach, 2008). Bond et al. (2011) evaluated psychometric properties of fidelity measures under the constraints of reliability and validity. Reliability measures consistency or repeatability, while validity describes whether a measure does what it is intended to do. There are various forms of reliability and validity designed to serve distinct purposes. Three types of validity are internal and external and concurrent validity. Three types of reliability are inter-rater and test-retest reliability and internal consistency. Researchers employ some combination of these tests to ensure their measures are psychometrically sound. Psychometrically sound measures can be used to measure treatment fidelity of an empirically supported-treatment, such as the one discussed in subsequent paragraphs.

Multi-Family Psychoeducational Psychotherapy (MF-PEP)

The Ohio State University has partnered with Nationwide Children's Hospital to explore a new application of Multi-Family Psychoeducational Psychotherapy (MF-PEP), an evidence-based intervention program developed by Dr. Mary Fristad, which combines psychoeducational properties (e.g., teaching about the disorder and its treatment) with psychotherapy (e.g., teaching communication, problem solving and emotion regulation skills) to improve children's functioning in the home, at school and with peers. While MF-PEP was originally developed to target symptoms of mood disorders, it has been adapted for children with Autism Spectrum Disorders (ASD) and their families. In the pilot study of MF-PEP for ASD, positive treatment outcome results from both the child group and parent group evaluation were reported in most categories, as well as a substantial amount of positive qualitative feedback from parents and children (Fristad et al., 2009). Additionally, past studies on MF-PEP for children with mood disorders showed promising results, suggesting lower mood symptom severity and improved family functioning at follow up (Mendenhall et al., 2009; Fristad et al., 2003). The larger current study being conducted on MF-PEP hopes to demonstrate that participating in MF-PEP for ASD will lead to better social adjustment, improved behavior, and an increased understanding of the diagnosis and challenges that accompany it

The Current Study

Developing evidence-based treatments for children with autism is important. Monitoring treatment fidelity should be part of this process. Successful evaluation of the properties of the adherence aspect of fidelity measures will contribute to the overall success of the intervention study for children and their families with an ASD and contribute to the overall field of research in psychology by continuing to merge the worlds of research and practice. The purpose of this

study was to examine the development, implementation and interpretation of treatment adherence measures designed to assess the effectiveness of a psychosocial intervention designed for children with Autism Spectrum Disorders and their families. More specifically, psychometric properties were assessed, including inter-rater reliability and internal consistency of the adherence measures. Adherence measures were hypothesized to be psychometrically sound and effective. Specifically, α coefficients were expected to be in the range of acceptable-excellent and intraclass-correlation coefficients (ICC) were expected to have moderate-strong agreement. Commonly accepted parameters for describing internal consistency using Chronbach's alpha is as follows: ≥ 0.9, Excellent, ≥ 0.8, Good, ≥ 0.7 Acceptable, ≥ 0.6, Questionable, ≥ 0.5, Poor, and < 0.5 Unacceptable (George & Mallery, 2003). If the measures are successfully implemented, it ensures that therapists adhere to guidelines set forth in the manuals and guarantee that the interpretation of results may be attributed to the intervention rather than outside variables.

Methods

Participants

Participants were recruited every three months from families who were either existing patients at the Center for Autism Spectrum Disorders (CASD) or who contacted CASD based on the website and other standard advertisements for CASD group services offered through Nationwide Children's Hospital. Approximately 6-8 families were recruited per session with 14 families total completing the program during the Fall 2011 and Winter 2012 groups. To participate in the study, the families must have a child between the ages of 8-12 with an Aspergers or PDD-NOS diagnosis, as determined by the Autism Diagnostic Observation Schedule (ADOS), with a full scale IQ of at least 70. The families also needed to speak English.

A total of 13 children participated in the study, six from the Fall 2011 group and seven from the Winter 2012 group. The Fall 2011 group consisted of three males and three females while the Winter 2012 group consisted of seven males. Thus, combined, the sample included ten male children (76.9%) and three female children (23.1%). All participants self-identified as white and not Hispanic. Demographics of the sample were consistent with the 2012 report from the Center for Disease Control and Prevention that found significantly higher prevalence of ASD amongst boys than girls and amongst non-Hispanic white children than non-Hispanic black children and Hispanic children (Center for Disease Control and Prevention, 2012).

Researchers obtained children's IQ scores and diagnostic information from their assessments with their psychologists. Full Scale Wechsler Intelligence Scale for Children (WISC) scores were obtained from seven out of 13 children, with a mean score of 94 (range, 72 to 130). Full Scale Stanford-Binet Intelligence Scale (SB-5) scores were obtained from five children, with a mean score of 94.8 (range, 81 to 113). A Full Scale Wechsler Preschool and Primary Scale of Intelligence (WPPSI) score was attained from one child with a score of 81.

Children had a variety of clinical diagnoses on the autism spectrum. Eight participants had a primary diagnosis of Pervasive Development Disorder- Not Otherwise Specified (PDD-NOS), four participants had a primary diagnosis of Asperger's Disorder, and one participant had a primary diagnosis of Autistic Disorder. In addition to primary diagnoses, six participants had comorbid diagnoses. Five participants had a comorbid diagnosis of ADHD and one had a comorbid diagnosis of Disorder of Written Expression. Two participants had secondary comorbid diagnoses of Learning Disorder – Not Otherwise Specified and Oppositional Defiant Disorder. One participant had a third comorbid diagnosis of depression.

Because measurement development is the primary goal, raters filling out the measures were also participants in the study. Two undergraduates and one graduate level student completed rating measures throughout the sessions. All three raters had training from observing previous groups of MF-PEP as well as training in the measures and coding procedures. Rater A rated sessions 1-8 of the Fall group, Rater B rated sessions 1-8 of both the Fall and Winter groups, and Rater C rated sessions 1-8 of the Winter group. Parents gave written consent and children written assent to participate in assessments and treatment. All study procedures and measures were approved by Nationwide Children's Hospital's Institutional Review Board (IRB), which has reciprocity with The Ohio State University IRB.

Measures

The adherence measure for the Child Group from the existing MF-PEP for mood disorders intervention (Therapist Adherence Checklist Child; Leffler, MacPherson, & Fristad, 2010) was adapted for the MF-PEP for ASD groups. The Parent Group Adherence Checklist was not available at the time of data collection for the current study, but will be adapted for use with the ASD groups in a future study. The checklists were adapted by altering items referring to mood disorders and changing them to fit the topics applicable for children with an ASD. An example of an item on one of the measures is: "asked members to rate their feelings and share with the group." The corresponding total percentage completed as well as number of items was adapted as the number of items increased or decreased. The adapted MF-PEP for ASD Therapist Adherence Checklist, Child Version (see Appendix A) are a series of checklists with 18-45 items that assess the degree to which the therapists leading the sessions adhered to the procedures outlined in the MF-PEP parent and child session manuals. Procedures of interest included reviews of past topics, introduction of new concepts, and other specific activities from the

manual. The measure evaluated for these sessions was the Therapist Adherence Checklist Child Version.

Procedure

Originally designed for children with mood disorders, MF-PEP has been adapted for children with ASD and their families. The program, still in the early stages of development, was implemented over 9 weekly sessions during which parents and children received education and social support, and developed skill sets including problem-solving, emotional regulation, and communication skills. Families participating in the study completed baseline assessments, attended eight sessions of MF-PEP, and completed post-treatment assessments. Each session covered a topic related to living with and overcoming the obstacles associated with ASD. Parent and child sessions were run separately, with the two groups meeting briefly at the end of each session to review what was learned. Two trained bachelor's level facilitators co-led the child group and covered topics such as non-verbal and verbal communication, emotional awareness and regulation exercises, and coping strategies related to common problems associated with ASD. The parent group was facilitated by an experienced Ph.D.-level psychologist and topics covered included treatment teams, medications, accommodations for a school setting, and other strategies for improving functioning at home.

To assess treatment adherence, trained undergraduate and graduate research assistants attended, observed, and took notes on each of the MF-PEP sessions. Multiple raters were used for the purpose of establishing inter-rater reliability. Raters noted whether facilitators included the appropriate educational and discussion topics and accompanying activities for each session. The measures were completed each week by the trained raters with a scoring system of 0 = not present, 1 = present, or X = can't rate (due to limitations), with space for comments. An example

of a possible limitation is a rater leaving the room, being unable to hear the facilitator, or attending to a child in the group. Data were collected from the Fall 2011 and Winter 2012 MF-PEP groups.

Data Analysis

Adherence measures were analyzed internal consistency and inter-rater reliability. Internal Consistency was assessed by calculating Coefficient α. Inter-Rater reliability was assessed two ways. First, Kappa was used. Second, Intraclass Correlation Coefficients, or the degree of agreement among raters, was also used as it is particularly useful when assessing dichotomous data.

Individual items for each session were summed. The scores were then divided by the total number of items on the measure to obtain an overall percentage for each session. Items that had only one rater's response were dropped and the N was adjusted accordingly.

Results

Internal Consistency

Overall measures of internal consistency were obtained for each session (1-8) by combining both Fall and Winter groups of MF-PEP using the Therapist Adherence Checklist-Child Version. The individual sessions' alphas ranged from α=.48 to .78 (Table 1). One session showed acceptable (α >.7) internal consistency while the majority of the rest had questionable (α >.6) ratings (George & Mallery 2003).

Inter-Rater Reliability

Preliminary analyses were conducted on the data to determine Kappa, a measure used for inter-rater reliability. For the fall session, Week 1 Kappa= .55, Week 2 Kappa=.79; Week 3 Kappa=.69; Week 4 Kappa=.62; Week 5 Kappa=.44; and Week 6 Kappa= .35. Due to scheduling

conflicts, the sessions during weeks 7 and 8 were combined into a final session with Kappa=.27. Results for the winter session were as follows: Week 1 Kappa=.62; Week 2 Kappa=.22; Week 3 Kappa=.61; Week 4 is missing data; Week 5 Kappa= .30; Week 6 Kappa=.44; and Week 7 Kappa=.39. For Week 8, neither raters were able to attend so there were no data for that session.

Using the standard for interpretation of agreement when using Kappa, the data from the Fall Session includes 3 weeks with substantial agreement between raters, 2 weeks with moderate agreement, and only 1 week with fair agreement. The winter session showed 2 sessions with substantial agreement, 1 week with moderate agreement, and 2 weeks with fair agreement (Landis & Koch, 1977). Further analyses were run to examine internal consistency and inter-rater agreement.

Inter-rater Reliability

Further measures of reliability were obtained from the three raters by calculating the intraclass correlation coefficients (ICC). A two-way mixed single measures model was used where inferences were confined to this particular set of raters in the measurement process. This model was chosen because raters were exactly 3 raters, 2 of whom rated each item in a session, making the raters a second factor in a two way ANOVA model. At a .95 confidence interval, ICCs for the Fall group ranged from ICC (3, 1) = .32-.79 (See Table 2). This demonstrates a wide range of reliability from very low agreement/low reliability to moderate agreement/good reliability. Due to scheduling conflicts sessions 7 and 8 were combined into a final session, possibly affecting the inter-rater agreement. ICCs for the Winter group ranged from ICC (3, 1) = .22-.66; again presenting a drastic range in reliability from very low to moderate. When looking at the overall inter-rater agreement for the Fall group it was found that ICC (3, 1) = .56; while the overall statistic for the Winter group was ICC (3, 1) = .44. The discrepancies between Fall and

Winter groups also imply raters during the Fall group had higher overall agreement than the Winter group.

Discussion

It was hypothesized that the Therapist Adherence Checklists-Child Version would be psychometrically sound and reliable, enabling them to be put to future use effectively measuring the fidelity of MF-PEP for children and their families with an ASD. More specifically, internal consistency was expected to demonstrate acceptable-excellent reliability and intraclass correlation coefficients were expected to demonstrate strong-moderate agreement, implying good-very good reliability. The hypothesis regarding internal consistency was not fully supported as the measures had moderate to poor reliability.

Implications

As there are no standardized measures that are designed to assess similar constructs, these results imply that development of adequate adherence measures are still in early stages. The need for specificity for these adherence measures presents problems that may not have arisen with a more general standardized measure. There is no reference point to compare the measure with, making it difficult to evaluate other aspects of validity such as discriminant or convergent validity (used to measure the degree to which measures are similar or different to other measures designed to assess the same/different constructs). Overall, these results demonstrate the need for additional research in areas of adherence measure development. As mentioned previously, understanding multiple aspects of implementing treatment fidelity, such as measurement and analysis of adherence measures, identifies the aspects that support or hinder successful implementation. Consequently, establishing the reliability and validity of fidelity measures

enables developing group-based interventions, such as the one used in the current study, to continue to progress (Zvoch, 2009).

The large range in internal consistency coefficients raises concerns about the Therapist Adherence Checklist-Child Version's ability to assess fidelity for that session. While a rating of questionable may be acceptable for exploratory research, measures should have acceptable or higher ratings to be considered psychometrically sound. These discrepancies imply that the measures can't be considered consistent in measuring therapist adherence and need modifications before future use. After examining the sessions with the lowest internal consistencies, it is possible to conclude that the material these sessions cover may be more complex and greater in quantity than other sessions. As the group data were combined, Session 8 internal consistency is likely low as one group was unable to attend so data were only available for the Fall Session. Also, as the group progresses through the sessions, the material changes slightly as it includes additional material to review. This range may also be attributed to the large variability in items of interest measured from session to session. This should be taken into consideration when adapting future measures in order to improve reliability. Additionally, after re-examining internal consistency, it is worthwhile to consider how applicable this measure is to the reliability of the Therapist Adherence Checklist. While internal consistency has been measured in past literature on treatment adherence, it is more applicable when the measure is developed with a Likert-type scale as there is more variability in scores. Also, as internal consistency examines the extent to which items on a measure assess the same construct, the Therapist Adherence Checklist-Child Version's variability in types of items present throughout one session may have played a role in the inconsistency of results; indicating that examining internal consistency is not as applicable as hypothesized.

The second measure of reliability examined, inter-rater reliability, also produced inconsistent results. Similar to internal consistency, while some sessions displayed high inter-rater agreement, others showed poor reliability in the low agreement range between raters. It can be assumed that while the inter-rater agreement varied from session to session, there was a moderate amount of disagreement between raters during the groups. Also, agreement between raters during the first group was on average higher than the second group. The differences in agreement across sessions could be due to a number of factors. Examining the sessions with the lowest agreement provide possible explanations for lack of agreement. Raters had to briefly leave the room during one session to assist with an additional survey. Additionally, sessions with lower agreement have fewer items on them than others. For both measures of reliability, completing the measures for additional sessions with additional raters would provide a more accurate estimate of the data. Despite the measures failing to support the hypotheses, these findings do provide implications for the field of psychometrics and from the broader standpoint of treatment fidelity. As mentioned previously, fidelity has largely gone unrecognized in recent years and is only recently becoming an issue research has come to address. This makes it more difficult to create accurate and reliable measures to assess treatment fidelity, or more specifically, treatment adherence.

Limitations

There were a number of limitations that could have impacted the results of this study. First, a few factors affected the ability of raters to accurately complete the adherence measures. Due to the nature of the symptoms and challenges associated with the population being studied (children with an ASD), occasionally situations would arise where raters would need to exit the room briefly with a child for a break due to behavioral or other reasons. This would impair their

ability to continue to complete the measure while the other rater would still be able to. These items would be discarded from analysis, lowering the N value. Another limitation stemming from the demographics and format of the group is the effect that the number of children present in the group would have on the therapists and raters. If the therapists needed assistance keeping the children focused, they would occasionally ask a rater to help; thus temporarily impairing their ability to fill out the measure. The number of children in a group also contributed to the level of distraction throughout the session, possibly impeding a rater's ability to hear the material covered by the therapists. These aspects impeding data collection would impact inter-rater reliability because one rater would be recording different things than the other. This limitation is difficult to control simply because they are due to the format of the group and this is unable to be changed. One possible idea would be to have three raters in each group to increase the amount of data collected; making it more reliable, or designate a specific therapist helper to decrease the amount of assistance asked of the raters. Additional training for raters or having raters observe from a recording of the session may also increase inter-rater reliability as any discrepancies could be explained beforehand.

Additional limitations are related to the amount of data available for analysis. While up to 8 children can participate in a group of MF-PEP, only one rating each week is possible due to the group format. Additionally, the groups run one at a time, in 8-week sessions, making it difficult to collect large amounts of data without spending an extended period of time in multiple groups. This impacts both measures of reliability as more data would increase power, therefore increasing reliability. Further research will incorporate additional groups and look at effects over time.

It is also important to acknowledge potential limitations when establishing therapist adherence of the groups. The format of the group is the main limitation in this area. When evaluating the results of the measures in the future certain factors such as the number of instructors, number of children, as well as length of time for each group should be considered. Additionally, the amount of material necessary to cover for each session should be taken into account as it may be more difficult to get through some weeks than others.

Future Directions

The current study raises quite a few additional questions and allows for a variety of modifications to be made in order to continue to research this topic. The first change that should be made for future research is in revising the current measures to continue to evaluate treatment adherence for the child group of MF-PEP for ASD. Focusing specifically on the measures with the lowest inter-rater reliability and internal consistency, the measures should be re-worked according to the manual by adjusting the criteria for certain items, thereby clarifying them for future raters. It may also prove worth it to look into running additional, more applicable statistics in order to get a more accurate picture of the measures' reliability. It will then be necessary to continue to collect data for the child group and re-evaluate the reliability as well as look into validity in order to produce the most accurate, reliable measure possible.

After finalizing the Therapist Adherence Checklist-Child Version, it will be important to develop a corresponding measure for the parent group. It will be interesting to determine whether the results are similar or different from the child group results. Once both measures are psychometrically sound then research can focus on analyzing the results of the Therapist Adherence Checklists and evaluating how treatment fidelity impacts the outcome of the intervention.

Measuring adherence and assessing this aspect of treatment fidelity of both the parent and child group would be another step to advance this research. After it is determined the measures are reliable and valid, they can be used for their intended purpose and data on the therapist adherence checklists can be calculated. After additional data collection, the level of therapist adherence can be calculated and discussed, with feedback provided to both the parent and child group leaders as a reminder to cover topics mentioned in the manual. This will be important to know for the effectiveness of MF-PEP as a larger study. It will be important to examine how treatment outcome and treatment adherence interact. This would be an additional aspect to look at in the future. If the therapists have high adherence, positive or negative outcomes of MF-PEP can be attributed to the therapy itself and not some confounding variable.

As more clinicians adopt evidence based practice as the primary mode of treatment, they will need as much information as possible regarding the content and fidelity from the researchers in order to implement the treatment effectively. Treatment adherence can serve a number of other purposes including providing a standard for which all future treatments should be held, reducing costs by promoting early detection of errors, and providing necessary evidence for important choices made by researchers and organizations such as funding needs and employment decisions (Moncher & Prinz, 1991; Schoenwald, 2011).

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Appendix A

MF-PEP Therapist Adherence Checklist
Child Session 1: Symptoms & Medications

	Specific Activities	Score 0=Not present 1=Present X=Can't rate*	Comments
Initial Intro and Check-In			
1	Introduced self and provided time for families to introduce themselves		
Intro and Check-In with Children			
2	Did an icebreaker		
3	Introduction to and purpose of the group		
4	Reviewed benefits of the group		
Orientation to the group			
5	Covered length of the group		
6	Covered format of the group		
Confidentiality			
7	Introduced topic of confidentiality		
8	Gave concrete example of confidentiality		
Group Rules			
9	General (discuss)		
10	Specific (list)		
Rewards/Points			
11	Explained immediate rewards		
12	Explained long-term points and how to redeem		
Distribution of Child Manuals			
13	Explained all materials are in this manual		
14	Client is responsible for bringing it to every session		
15	Covered the topic of weekly projects		
Identifying and Rating Feelings			
16	Asked members to identify and rate feelings		
17	Explained "danger zone" and goal for the activity		
18	Shared feelings and intensity with group and identified reason for choice		
19	Engaged members to share their feelings and intensity with group along with reason for choice		
Session 1 Preview			
20	Presented all 3 content areas of preview		
What are Autism Spectrum Disorders			
21	Generate list of ASD problem areas		
22	Review problems associated with ASD in Child Workbook (general)		
23	Review problems associated with perseveration		
24	Review problems associated with emotional regulation		
25	Review problems associated with social isolation		
Other Problems			
26	Identified additional disorders that might be		

	experienced by members		
27	Briefly reviewed symptoms of additional disorders		
MF-PEP Motto			
28	Introduced motto and had members state it		
29	Explained motto and its goal in the group		
"Fix It" List Project			
30	Asked members to describe a time when ASD symptoms caused trouble in each of the areas		
31	Reviewed "Fix It" list example		
32	Explained instructions of project		
33	Inquired about and problem solved potential barriers to completing the project		
Physical or Active Learning Project			
34	Explained and demonstrated the project's goal		
35	Discussed how the activity ties into group topic		
Belly Breathing			
36	Explained importance of breathing exercises and how they factor into group goals and/or motto		
37	Reviewed physiology of deep breathing		
38	Explained and modeled breathing exercise ≥ 2 times		
39	Provided feedback to group and/or specific members about their breathing		
40	Explained goal of practicing daily or, at minimum, 3X before next session; record practice in their log		
Volunteers			
41	Selected volunteer to explain session topics		
42	Selected volunteer to explain the "Fix It" list project		
43	Selected volunteer to demonstrate and explain belly breathing		
Rejoined Parent Group			
44	Had three volunteers share their information with the parent group; and provided assistance as needed		
45	Reminded parents and children to bring their workbooks back each week		
Total:			
Total X items:			
Percent [Total Divided by (45 – number of X items) * 100]:			

*Can't rate due to technical limitations (e.g., tape review--recording unclear, live observer-- had to leave room)

MF-PEP Therapist Adherence Checklist
Child Session 2: Naming the Enemy & Medications

	Specific Activities	Score 0=Not present 1=Present X=Can't rate*	Comments
Check-In			
1	Encouraged families to briefly reintroduce themselves		
2	Engaged a few members/families to briefly share their Week 1 project		
Identifying and Rating Feelings			
3	Asked members to identify and rate their feelings		
4	Reviewed, as needed, how to complete and activity's goal		
5	Shared feelings and intensity with group and identified reason for choice		
6	Engaged members to share their feelings and intensity with group along with reason for choice		
Session 2 Review/ Preview			
7	Gave each member a chance to share News of the Week		
8	Awarded points		
9	Reviewed members' Week 1 project		
10	Addressed concerns related to difficulty understanding or completing the project		
11	For the following review, all shaded items should be briefly covered to be present		NOTE: Tally only #11, not 11a-e for final score
11a	Reviewed group rules	1 0 X	
11b	Reviewed problems of ASD	1 0 X	
11c	Reviewed the family "Fix-It" list of goals to achieve by the end of group	1 0 X	
11d	Reviewed MF-PEP motto	1 0 X	
11e	Reviewed breathing techniques	1 0 X	
12	Previewed topics for Week 2		
Naming the Enemy			
13	Discussed positive personal characteristics		
14	Facilitated generating a list of symptoms and positive personal characteristics		
15	Demonstrated how symptoms can cover positive personal characteristics		
16	Demonstrated how managing symptoms can allow positive personal characteristics to be uncovered		
Getting Help			
17	Identified and explained how educational services can assist in symptom management		
18	Identified and explained how therapy services can assist in symptom management		
19	Identified and explained how discussing medications and side effects with the prescriber can assist in		

	symptom management		
Connections between Treatment and ASD Problems			
20	Explained how to evaluate effects of each intervention		
21	Discussed role of a treatment team and how to successfully participate as part of the team		
My Medicine Worksheet			
22	Encouraged members to complete worksheet		
23	Facilitated members to share medication information		
24	Discussed enemies targeted by medications and potential barriers related to medications		
25	Identified the potential role of medication in treating ASD		
Side Effects and Treatments			
26	Introduced and discussed pros/cons of medications		
27	Explained side effects and discussed ways to address them		
28	Distinguished between unpleasant and serious side effects		
29	Encouraged members to communicate with caregivers and prescribers about their medication side effects and concerns		
"Naming the Enemy" The Symptom-Self Exercise Project			
30	Explained project instructions using examples from group		
31	Inquired about and problem solved potential barriers to completing the project		
Physical or Active Learning Project			
32	Explained and demonstrated the project's goal		
33	Discussed how the activity ties into group topic		
Bubble Breathing			
34	Explained and modeled breathing exercise ≥ 2 times		
35	Provided feedback to group and/or specific members about their breathing		
36	Explained goal of practicing daily **or,** at minimum, 3X before next session; record practice in their log		
Volunteers			
37	Selected volunteer to explain session topics		
38	Selected volunteer to explain the "Naming the Enemy" project		
39	Selected volunteer to demonstrate and explain breathing exercise		
Rejoined Parent Group			
40	Had three volunteers share information with the parent group; provided assistance as needed		
41	Encouraged parents and children to work on their breathing exercise and projects		
Total:			
Total X items:			
Percent [Total Divided by (41 – number of X items) * 100]:			

*Can't rate due to technical limitations (e.g., tape review--recording unclear, live observer-- had to leave room)

MF-PEP Therapist Adherence Checklist
Child Session 3: Feelings Management

	Specific Activities	Score 0=Not present 1=Present X=Can't rate*	Comments
Check-In			
1	Engaged a few members/families to briefly share their Week 2 project		
Identifying and Rating Feelings			
2	Asked members to identify and rate feelings		
3	Shared feelings/intensity with group; identified reason for choice		
4	Engaged members to share their feelings and intensity with group along reason for choice		
Session 3 Review/ Preview			
5	Gave each member a chance to share News of the Week		
6	Awarded points		
7	Reviewed member's Week 2 project		
8	Addressed concerns related to difficulty understanding or completing the project		
9	For the following review all shaded items should be briefly covered to be present		NOTE: Tally only #9, not 9a-h for final score
9a	Reviewed group rules	1 0 X	
9b	Reviewed problems associated with ASD	1 0 X	
9c	Reviewed MF-PEP motto	1 0 X	
9d	Reviewed the family "Fix-It" list of goals to achieve by the end of group	1 0 X	
9e	Reviewed how ASD problems and other disorders can result in negative feelings about self and affect their relationships with others	1 0 X	
9f	Reviewed treatment team members and how to be an active member of the team	1 0 X	
9g	Reviewed medications, common side effects, and how to manage side effects	1 0 X	
9h	Reviewed breathing techniques	1 0 X	
10	Previewed topics for Week 3		
My Triggers for Mad/Sad/Bad Feelings			
11	Explained mad, sad, and bad feelings		
12	Discussed that we can experience more than one feeling related to an event		
13	Explained triggers (ie, some event that leads you to feel mad, sad, or bad)		
14	Provided example of triggers		
15	Generated ideas of triggers with members		
16	Encouraged members to write down examples on "My Triggers for Mad/Sad/Bad Feelings" worksheet		
17	Discussed responses to triggers		
My Body Signals			
18	Explained how our bodies can react to our feelings with physiological sensations		

19	Generated ideas about body signals of mad, sad, and bad feelings with group		
20	Used silhouette to indicate areas of physiological sensations		
21	Encouraged members to write down examples on “My Body Signals for Mad/Sad/Bad Feelings” worksheet		
My Actions when I Feel Mad, Sad, or Bad			
22	Summarized past discussion of triggers, events that trigger mad, sad or bad feelings, and how our bodies react to those feelings		
23	Explained we have choices about how we respond to our feelings		
24	Linked discussion back to group motto		
25	Explained three ways to evaluate whether an action is helpful or hurtful: 1) does it hurt me; 2) does it hurt anyone or anything else; 3) does it get anyone in trouble		
26	Encouraged members to write down examples on “My Actions when I Feel Mad/Sad/Bad” worksheet		
Taking Care of the Mad, Sad, Bad Feelings: Tool Kit Project			
27	Explained the goal of generating strategies to help better manage mood		
28	Explained this collection of strategies is called a “tool kit” because it holds the “tools” for activities that help manage moods		
29	Discussed importance of developing a variety of strategies that can be used at different places and times		
30	Discussed four categories of tools: 1) creative; 2) active; 3) rest and relaxation; and 4) social		
31	Encouraged members to generate a list of activities in each category		
32	Explained instructions for completion of tool kit project		
33	Informed members that they can make an actual tool kit and bring it in to share next session and earn extra participation points		
34	Explained second part of project: writing down three events that upset members during the week; how their body felt when it happened; how they remembered to use their tool kit; the tools they used; and how the strategy worked		
35	Identified and problem solved any potential barriers to completing project		
Physical or Active Learning project			
36	Explained the activity’s goal		
37	Discussed how the activity ties into group topic		
Balloon Breathing			
38	Explained and modeled breathing exercise at least twice		
39	Provided feedback to group and/or specific members about their practice		
40	Explained goal of practicing daily or, at minimum, 3X before next session; record practice in their log		
Volunteers			
41	Selected volunteer to explain session topics		
42	Selected volunteer to explain the “Taking Charge of the		

	Mad, Sad, Bad Feelings" project		
43	Selected volunteer to demonstrate and explain balloon breathing		
Rejoined Parent Group			
44	Had three volunteers share their information with the parent group and provided assistance as needed		
45	Encouraged parents and children to work on their breathing exercise and projects		
Total:			
Total X items:			
Percent [Total Divided by (45 – number of X items) * 100]:			

*Can't rate due to technical limitations (e.g., tape review--recording unclear, live observer-- had to leave room)

MF-PEP Therapist Adherence Checklist
Child Session 4: Thinking, Feeling, Doing

	Specific Activities	Score 0=Not present 1=Present X=Can't rate*	Comments
Check-In			
1	Engaged a few members/families to briefly share their Week 3 project		
Identifying and Rating Feelings			
2	Asked members to identify and rate feelings		
3	Shared feelings and intensity with group and identified reason for choice		
4	Engaged members to share their feelings and intensity with group along with reason for choice		
Session 4 Review/ Preview			
5	Gave each member a chance to share News of the Week		
6	Awarded points		
7	Reviewed members' Week 3 project		
8	Addressed concerns related to difficulty understanding or completing the project		
9	Allowed members to share their tool kits		
10	For the following review, all shaded items should be briefly covered		NOTE: Tally only #10, not 10a-g for final score
10a	Reviewed how triggers affect our mood	1 0 X	
10b	Reviewed when to apply coping strategies from tool kits	1 0 X	
10c	Reviewed how to evaluate whether an action is helpful or hurtful	1 0 X	
10d	Reviewed how problems of ASD can result in negative feelings about self and affect their relationships with others	1 0 X	
10e	Reviewed members of their treatment team and how to be an active member of the team	1 0 X	
10f	Reviewed medications, common side effects, and how to manage side effects	1 0 X	
10g	Reviewed MF-PEP motto	1 0 X	
11	For the following review, ≥ 50% of shaded items should be briefly covered		NOTE: Tally only #11, not 11a-d for final score
11a	Reviewed the family "Fix-It" list of goals to achieve by the end of group	1 0 X	
11b	Reviewed group rules	1 0 X	
11c	Reviewed problems associated with ASD	1 0 X	
11d	Reviewed breathing techniques	1 0 X	
12	Previewed topics for session 4		
Changing Thoughts, Feelings, and Actions: Hurtful Example			
13	Identified trigger (getting a bad grade) and associated feelings		
14	Identified and processed with members how those feelings helped or hurt them		
15	Discussed "doing" part by encouraging members to identify helpful and hurtful behaviors and their		

	associated outcomes		
16	Identified association between thoughts, feelings and behaviors		
17	Discussed the role of thoughts and difference between thoughts and feelings		
18	Engaged the members in identifying thoughts for this example		
19	Reviewed hurtful example and described steps to demonstrate cycle		
Changing Thoughts, Feelings, and Actions: Helpful Example			
20	Discussed why it might be important to change hurtful feelings, thoughts and behaviors to more helpful ones		
21	Identified how to evaluate outcome of actions		
22	Reviewed how MF-PEP motto should be incorporated in the model		
23	Engaged members in discussing helpful “doing” examples to use tools from tool kit		
24	Facilitated discussion of helpful thoughts members could have in this situation		
25	Explained how helpful thoughts can result in helpful feelings and actions		
26	Compared outcomes in helpful cycle and hurtful cycle		
27	Explained that hurtful thoughts and actions can result in hurtful feelings that continue a hurtful cycle that increases our negative feelings and thoughts about others, our environments, and ourselves		
28	Explained that we may experience hurtful feelings, but by changing to helpful thoughts and actions we can improve our feelings		
29	Explained how bidirectional arrows indicate that a change in one are impacts another		
Changing Thoughts, Feelings, and Actions: Group Specific Examples			
30	Facilitated discussion and provided feedback of trigger events for group members		
31	Facilitated discussion and provided feedback of hurtful thinking, feeling, and doing with identified triggers		
32	Facilitated discussion and provided feedback of helpful thinking, feeling, and doing with identified triggers		
Thinking-Feeling-Doing Project			
33	Reviewed steps of the Thinking, Feeling, Doing cycle and how to evaluate outcomes of the actions using workbook examples		
34	Explained instructions for completion of “Thinking-Feeling-Doing” Project		
35	Identified and problem solved any potential barriers to completing project		
Physical or Active Learning Project			
36	Explained and demonstrated goal of the activity		
37	Discussed how the activity ties into group topic		
Belly Breathing			
38	Explained and modeled breathing exercise		
39	Provided feedback to group and/or specific members		

	about their breathing		
40	Reminded members about goal of practicing daily or, at minimum, 3X before next session; record practice in log		
Volunteers			
41	Selected volunteer to explain session topics		
42	Selected volunteer to explain the "Thinking-Feeling-Doing" project		
43	Selected volunteer to demonstrate belly breathing		
Rejoined Parent Group			
44	Had three volunteers share their information with the parent group; provided assistance as needed		
45	Encouraged parents and children to work on their breathing exercise and projects		
Total:			
Total X items:			
Percent [Total Divided by (45 – number of X items) * 100]:			

*Can't rate due to technical limitations (e.g., tape review--recording unclear, live observer-- had to leave room)

MF-PEP Therapist Adherence Checklist
Child Session 5: Problem Solving

	Specific Activities	Score 0=Not present 1=Present X=Can't rate*			Comments
Check-In					
1	Engaged a few members/families to briefly share their Week 4 project				
Identifying and Rating Feelings					
2	Asked members to identify and rate feelings				
3	Shared feelings and intensity with group and identified reason for choice				
4	Engaged members to share their feelings and intensity with group along with reason for choice				
Session 5 Review/ Preview					
5	Gave each member a chance to share News of the Week				
6	Awarded points				
7	Reviewed members' Week 4 project				
8	Addressed concerns related to difficulty understanding or completing the project				
9	**For the following review, all shaded items should be briefly covered**				NOTE: Tally only #9, not 9a-e for final score
9a	Reviewed how thoughts, feelings, and behaviors are linked, each one affecting and being affected by the other two	1	0	X	
9b	Reviewed how we can transform hurtful/negative thoughts into more helpful/positive ones to change our feelings and behavior in a tough situation	1	0	X	
9c	Reviewed how triggers affect our mood	1	0	X	
9d	Reviewed when to apply coping strategies from tool kits	1	0	X	
9e	Reviewed MF-PEP motto	1	0	X	
10	**For the following review, ≥ 50% of shaded items should be briefly covered**				
10a	Reviewed the family "Fix-It" list of goals to achieve by the end of group	1	0	X	
10b	Reviewed group rules	1	0	X	
10c	Reviewed problems associated with ASD	1	0	X	
10d	Reviewed how to evaluate whether an action is helpful or hurtful	1	0	X	
10e	Reviewed breathing techniques	1	0	X	
10f	Reviewed how ASD problems can result in negative feelings about self and affect relationships with others	1	0	X	
10g	Reviewed treatment team members and how to be an active member of the team	1	0	X	
10h	Reviewed medications, common side effects, and how to manage side effects	1	0	X	
11	Previewed topics for Week 5				
Problem Solving: Introduction with Group Member Example					
12	Identified a trigger provided by a group member (ie, an event that occurred and resulted in a hurtful feeling)				
13	Using member's example, reviewed what happened next				

14	Using member's example, reviewed outcome of action and identify whether it was helpful or hurtful (does it hurt me; does it hurt anyone or anything else; does it get anyone in trouble)		
Problem Solving: Introducing the Steps using Group Member Examples			
15	Explained identification of triggers using another group member example		
16	Identified, with group member's input, a potential problem		
17	Identify the hurtful feeling and its intensity		
18	Generated with group members ≥ 2 coping strategies they could have used to calm down (STOP step)		
19	Generated with group members ≥ 3 options to better handle the situation (THINK step)		
20	Discussed with group members which options they would be willing to try (PLAN step)		
21	Restated the chosen option (DO step)		
22	Followed-up by asking "What would happen if you did this? Would the outcome be helpful or hurtful?" (CHECK step)		
23	Engaged members to discuss if they would use this strategy in the future (why/why not)		
24	Completed ≥ 1 more example of problem solving steps with another group member's identified trigger		
25	Encouraged completion of Problem Solving worksheet		
Problem Solving Project			
26	Reviewed steps of the problem-solving approach and how to evaluate outcomes		
27	Explained instructions for completion of "Problem Solving" Project		
28	Identified and problem solved any potential barriers to completing project		
Physical or Active Learning Project			
29	Explained and demonstrated the project's goal		
30	Discussed how the activity ties into group topic		
Balloon Breathing			
31	Explained and modeled breathing exercise		
32	Provided feedback to group and/or specific members about their practice		
33	Reminded members about goal of practicing daily or, at minimum, 3X before next session; record in log		
Volunteers			
34	Selected volunteer to explain session topics		
35	Selected volunteer to explain "Problem Solving" project		
36	Selected volunteer to demonstrate balloon breathing		
Rejoined Parent Group			
37	Had three volunteers share information with the parent group; provided assistance as needed		
38	Encouraged parents and children to work on their breathing exercise and projects		
Total:			
Total X items:			
Percent [Total Divided by (38 – number of X items) * 100]:			

*Can't rate due to technical limitations (e.g., tape review--recording unclear, live observer-- had to leave room)

MF-PEP Therapist Adherence Checklist
Child Session 6: Nonverbal Communication

	Specific Activities	Score 0=Not present 1=Present X=Can't rate*	Comments
Check-In			
1	Engaged a few members/families to briefly share their Week 5 project		
Identifying and Rating Feelings			
2	Asked members to identify and rate their feelings		
3	Shared feelings and intensity with group and identified reason for choice		
4	Engaged members to share their feelings and intensity with group along with reason for choice		
Session 6 Review/ Preview			
5	Gave each member a chance to share News of the Week		
6	Awarded points		
7	Reviewed members' Week 5 project		
8	Addressed concerns related to difficulty understanding or completing the project		
9	For the following review, all shaded items should be briefly covered		NOTE: Tally only #9, not 9a-e for final score
9a	Reviewed how thoughts, feelings, and behaviors are linked, each one affecting and being affected by the other two	1 0 X	
9b	Reviewed how we can transform hurtful/negative thoughts into more helpful/positive ones to change our feelings and behavior in a tough situation	1 0 X	
9c	Reviewed five steps of problem-solving: Stop; Think; Plan; Do; Check	1 0 X	
9d	Reviewed how to evaluate whether an action is positive or negative	1 0 X	
9e	Reviewed MF-PEP Motto	1 0 X	
10	For the following review, ≥ 33% of shaded items should be briefly covered		NOTE: Tally only #10, not 10a-i for final score
10a	Reviewed family "Fix-It" list of goals to achieve by the end of group	1 0 X	
10b	Reviewed group rules	1 0 X	
10c	Reviewed problems of ASD	1 0 X	
10d	Reviewed breathing techniques	1 0 X	
10e	Reviewed how problems of ASD can result in negative feelings about self and affect relationships with others	1 0 X	
10f	Reviewed treatment team members and how to be an active member of the team	1 0 X	
10g	Reviewed medications, common side effects, and how to manage side effects	1 0 X	
10h	Reviewed how triggers affect our mood	1 0 X	
10i	Reviewed when to apply coping strategies from tool kits	1 0 X	
11	Previewed topics for Week 6		
Communication: Definition and Types			

12	Began discussion by inquiring about getting in trouble for not listening or following directions		
13	Asked group to define communication		
14	Engaged members to generate and discuss definition - *Key concepts*: an exchange between two or more people; sharing ideas and feelings; listening to them; and acknowledging the information		
15	Processed with group why communication is important		
16	Engaged members to generate and discuss importance of communication – *Key concepts*: to let other know what you need, how you are feeling, and what you expect; to learn what others need, how they are feeling, and what they expect		
17	Explained verbal and nonverbal communication		
The Communication Cycle			
18	Explained communication cycle, highlighting sending and receiving a message from all participants involved		
19	Demonstrated communication cycle with members		
Communication Cards			
20	Explained and practiced interpreting and giving nonverbal communication focusing on facial expressions, voice tone, and body gestures		
Paying Attention to Feelings Project			
21	Reviewed the types of communication and the methods of each, as well as the communication cycle		
22	Explained instructions for completion of “Paying Attention to Feelings” project		
23	Identified and problem solved any potential barriers to completing project		
Physical or Active Learning Project			
24	Explained and demonstrated the goal of the project		
25	Discussed how the activity ties into group topic		
Balloon Breathing			
26	Explained and modeled breathing exercise		
27	Provided feedback to group and/or specific members about their breathing		
28	Reminded members about goal of practicing daily or, at minimum, 3X before next session; record in log		
Volunteers			
29	Selected volunteer to explain session topics		
30	Selected volunteer to explain the “Paying Attention to Feelings” project		
31	Selected volunteer to demonstrate bubble breathing		
Rejoined Parent Group			
32	Had three volunteers share their information with the parent group; provided assistance as needed		
33	Encouraged parents and children to work on their breathing exercise and projects		
Total:			
Total X items:			
Percent [Total Divided by (33 – number of X items) * 100]:			

*Can’t rate due to technical limitations (e.g., tape review--recording unclear, live observer-- had to leave room)

MF-PEP Therapist Adherence Checklist
Child Session 7: Verbal Communication

	Specific Activities	Score 0=Not present 1=Present X=Can't rate*	Comments
Check-In			
1	Engaged a few members/families to briefly share their week 6 project		
Identifying and Rating Feelings			
2	Asked members to identify and rate their feelings		
3	Shared feelings and intensity with group and identified reason for choice		
4	Engaged members to share their feelings and intensity with group along with reason for choice		
Session 7 Review/ Preview			
5	Gave each member a chance to share News of the Week		
6	Awarded points		
7	Reviewed members' Week 6 project		
8	Addressed concerns related to difficulty understanding or completing the project		
9	For the following review, all shaded items should be briefly covered to be present		NOTE: Tally only #9, not 9a-c for final score
9a	Reviewed five steps of problem-solving: Stop; Think; Plan; Do; Check	1 0 X	
9b	Reviewed how communication occurs in verbal and nonverbal ways and the communication cycle	1 0 X	
9c	Reviewed MF-PEP motto	1 0 X	
10	For the following review, ≥ 33% of shaded items should be briefly covered		NOTE: Tally only #10, not 10a-l for final score
10a	Reviewed the family "Fix-It" list of goals to achieve by the end of group	1 0 X	
10b	Reviewed group rules	1 0 X	
10c	Reviewed ASD problems	1 0 X	
10d	Reviewed how to evaluate whether an action is positive or negative	1 0 X	
10e	Reviewed breathing techniques	1 0 X	
10f	Reviewed how ASD problems can result in negative feelings about self and affect their relationships with others	1 0 X	
10g	Reviewed treatment team members and how to be an active member of the team	1 0 X	
10h	Reviewed medications, common side effects, and how to manage side effects	1 0 X	
10i	Reviewed how triggers affect our mood	1 0 X	
10j	Reviewed when to apply coping strategies from tool kits	1 0 X	
10k	Reviewed how thoughts, feelings, and behaviors are linked, each one affecting and being affected by the other two	1 0 X	
10l	Reviewed how we can transform hurtful/negative	1 0 X	

	thoughts into more helpful/positive ones to change our feelings and behavior in a tough situation		
11	Previewed topics for Week 7		
Hurtful and Helpful Communication			
12	Began discussion by inquiring about examples when group members said things they did not mean or regretted saying afterwards		
13	Inquired how members felt after they engaged in hurtful communication		
14	Reviewed "I" statements		
15	Worked through hurtful communication examples in workbook and generated helpful alternatives		
Let's Talk			
16	Introduced activity by explaining that everyone can work to improve outcomes of communication at home, school, and with friends		
17	Elicited and discussed group members' examples of something they argue with parents about, problem-solving with helpful communication alternatives		
18	Encouraged completion of "Let's Talk!" worksheet		
19	Encouraged group members to share worksheet responses and provided feedback		
Let's Talk Project			
20	Reviewed ways members can change hurtful messages to helpful messages, discussed outcomes of this process for the members and those around them		
21	Explained instructions to complete "Let's Talk" project		
Physical or Active Learning Project			
22	Explained and demonstrated the goal of the project		
23	Discussed how the activity ties into group topic		
Favorite Breathing Exercise			
24	Explained and modeled breathing exercise		
25	Provided feedback to group and/or specific members about their breathing		
26	Reminded members about goal of practicing daily or, at minimum, 3X before next session; record in log		
Volunteers			
27	Selected volunteer to explain session topics		
28	Selected volunteer to explain the "Let's Talk" project		
29	Selected volunteer to demonstrate favorite breathing exercise		
Rejoined Parent Group			
30	Had three volunteers share information with the parent group; provided assistance as needed		
31	Encouraged parents and children to work on their breathing exercise and projects		
Total:			
Total X items:			
Percent [Total Divided by (31 – number of X items) * 100]:			

*Can't rate due to technical limitations (e.g., tape review--recording unclear, live observer-- had to leave room)

MF-PEP Therapist Adherence Checklist
Child Session 8: Summary, Generalization, Revision, Cash in Points, Graduation

	Specific Activities	Score 0=Not present 1=Present X=Can't rate*	Comments
Check-In			
1	Engaged a few members/families to briefly share their Week 7 project		
Identifying and Rating Feelings			
2	Asked members to identify and rate their feelings		
3	Shared feelings and intensity with group and identified reason for choice		
4	Engaged members to share their feelings and intensity with group along with reason for choice		
Session 8 Review/ Preview			
5	Gave each member a chance to share News of the Week		
6	Awarded points		
7	Reviewed members' Week 7 project		
8	Addressed concerns related to difficulty understanding or completing the project		
9	For the following review, all shaded items should be briefly covered		NOTE: Tally only #9, not 9a-c for final score
9a	Reviewed how communication occurs in verbal and nonverbal ways and the communication cycle	1 0 X	
9b	Reviewed how to use "I statements" to transform hurtful communication to more helpful communication	1 0 X	
9c	Review MF-PEP motto	1 0 X	
10	For the following review a minimum of 33% of items should be briefly covered		NOTE: Tally only #10, not 10a-m for final score
10a	Reviewed the family "Fix-It" list of goals to achieve by the end of group	1 0 X	
10b	Reviewed group rules	1 0 X	
10c	Reviewed ASD problems	1 0 X	
10d	Reviewed how to evaluate whether an action is helpful or hurtful	1 0 X	
10e	Reviewed breathing techniques	1 0 X	
10f	Reviewed how ASD problems can result in negative feelings about self and affect relationships with others	1 0 X	
10g	Reviewed treatment team members and how to be an active member of the team	1 0 X	
10h	Reviewed medications, common side effects, and how to manage side effects	1 0 X	
10i	Reviewed how triggers affect our mood	1 0 X	
10j	Reviewed when to apply coping strategies from tool kits	1 0 X	
10k	Reviewed how thoughts, feelings, and behaviors are linked, each one affecting and being affected by the other two	1 0 X	
10l	Reviewed how we can transform hurtful/negative thoughts into more helpful/positive ones to change our feelings and behavior in a tough situation	1 0 X	

10m	Reviewed five steps of problem-solving: Stop; Think; Plan; Do; Check	1 0 X	
MF-PEP Review Game			
11	Explained directions for MF-PEP review game		
12	Facilitated game with 4 categories of questions: 1) Problems/Medications; 2) Thinking-Feeling-Doing; 3) Anger Management/Coping; and 4) Problem Solving/Communication		
13	After game, asked members for recommendations for future groups		
Selecting Prizes			
14	Totaled group members' points		
15	Facilitated selection of prizes		
Rejoined Parent Group			
16	Presented graduation certificates		
17	Provided congratulation speech for each child/family		
18	Addressed concerns and questions		
Total:			
Total X items:			
Percent [Total Divided by (18 – number of X items) * 100]:			

*Can't rate due to technical limitations (e.g., tape review--recording unclear, live observer-- had to leave room)

Table 1

Internal Consistency of the Therapist Adherence Checklist (Child-Version)

Session	N[a]	Cronbach's Alpha
1	45	.67
2	41	.61
3	41	.78
4	45	.63
5	38	.67
6	28	.56
7	31	.56
8	19	.48

[a]N refers to number of items on each measure

Table 2

Intraclass Correlation Coefficients for the Therapist Adherence Checklist (Child-Version)

Group/Session	ICC (3,1)
Fall Session 1	.56
Fall Session 2	.79
Fall Session 3	.69
Fall Session 4	.62
Fall Session 5	.44
Fall Session 6	.36
Fall Session 7	---
Fall Session 8	.32
Average Fall	.54
Winter Session 1	.66
Winter Session 2	.22
Winter Session 3	.63
Winter Session 4	__
Winter Session 5	.31
Winter Session 6	.46
Winter Session 7	.39
Winter Session 8	---
Average Winter	.44